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ABSTRACT

Presented in this document are data pertaining to maintenance and operations costs at colleges and universities in the southeastern region of the U.S. The major accounts included in the cost analysis are: (1) physical plant administration, (2) building maintenance, (3) custodial services, (4) utilities, (5) landscape and grounds maintenance, and (6) major repairs and renovations. (HS)

COMPARATIVE COST STUDY

By

Southeastern Regional Association

of

Physical Plant Administrators

of

Universities and Colleges

Standards Committee

October 1972

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
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DUKE UNIVERSITY

REPORT

of

SOUTHEASTERN REGIONAL ASSOCIATION
OF PHYSICAL PLANT ADMINISTRATORS
IN UNIVERSITIES AND COLLEGES
STANDARDS COMMITTEE - 1972

C O M P A R A T I V E C O S T S T U D Y

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2. Classification of Major Accounts and Summary of Definitive Terms
3. Index of Institutions Returning Questionnaires
4. Relative Enrollments and Sizes
5. Tabulation of Costs by Major Account followed by Bar Graph for that Account

S.R.A.P.P.A.U.C. STANDARDS COMMITTEE
QUESTIONNAIRE - 1972

1. MAINTENANCE AND OPERATIONS COSTS

Subdivision	Gross Sq. Ft. Building Area Serviced	Actual Dollar Expenditures 1971-72 Fiscal Year
1.1 Physical Plant Administration	_____	_____
1.2 Building Maintenance	_____	_____
1.3 Custodial Services	_____	_____
1.4 Utilities	_____	_____
1.5 Landscape & Grounds Maintenance	_____	_____
1.6 Major Repairs & Renovations	_____	_____
1.7 Other Physical Plant Services	_____	_____

1.8 Total Physical Plant Expenditures $_____

1.9 Total Institution Expenditures (Not including auxiliary enterprises.) $_____

1.10 Physical Plant Expenditures As A Percent Of Institution Total %_____

2. ENROLLMENT DATA

2.1 Total Head Count On Campus _____

Student Credit Hours As Recorded With Registrar:

Graduate _____

Undergraduate _____

2.2 Full-Time Equivalent Students _____

3. CAMPUS AREA

3.1 Gross Area, Acres _____

3.2 Intensely Maintained Area, Acres _____

Signed_____ School_____

ASSOCIATION OF PHYSICAL PLANT ADMINISTRATORS

CLASSIFICATION OF ACCOUNTS
April, 1971

MAJOR ACCOUNTS

1. Physical Plant Administration
2. Building Maintenance
3. Custodial Services
4. Utilities
5. Landscape and Grounds Maintenance
6. Major Repairs and Renovations

OUTLINE OF COSTS TO BE INCLUDED UNDER EACH MAJOR ACCOUNT

1. Physical Plant Administration

All activities necessary to carry out the duties of management and administration for all areas under the jurisdiction of the Physical Plant Division are included. Examples of the activities are:

1.1 Administration

Salaries, wages, employee benefits, travel, equipment, and other operating costs required for:

Administrator.
Assistant Administrators.
Office personnel including account keeping done by the Physical Plant Department such as payroll, billing, material ordering, personnel records, and dispatching of work orders.
Other administrative operating costs including supplies, materials, pro rata share of telephones, postage, computer rental, accounting machine costs, and career training programs.

1.2 Engineering normally includes:

Salaries, wages, employee benefits, travel, equipment, and other costs required to provide technical and engineering services necessary to effectively carry out the functions assigned and funded in the Physical Plant Division. Includes staff personnel such as engineers, architects, draftsmen, estimators, schedulers; and preparation of documents for contractural maintenance and renovations; also includes analysis of systems and modes of operation, plant records, etc.

OUTLINE OF COSTS TO BE INCLUDED UNDER EACH MAJOR ACCOUNT

1.2 Engineering - (Cont.)

Preparation of architectural and engineering plans and specifications for the alterations and new construction are normally funded from other sources.

2. Building Maintenance

Building maintenance includes all items related to routine repair of buildings, structures and appurtenances, including normal recurring repairs and preventive maintenance. Include the following:

2.1 Interior and exterior of buildings

2.1.1 Plumbing, heating, air conditioning, and ventilation,

2.1.2 Electrical repairs of all types including primary and secondary systems, and certain lamp replacements (requiring special ladders and rigging) and maintenance of outdoor lighting fixtures (excludes energy costs),

2.1.3 Carpentry and cabinet making,

2.1.4 Painting and glazing,

2.1.5 Hardware, locks, keys, closers and records,

2.1.6 Roofing and sheet metal work, including downspouts and gutters,

2.1.7 Welding and necessary machine work,

2.1.8 Elevators and similar equipment,

2.1.9 Miscellaneous building repairs such as tuckpointing, blinds, etc.

2.2 Maintenance of general purpose classroom furniture and equipment within the building not inventoried to a department.

2.3 Maintenance of utility distribution systems inside the building. Electrical, heating, process steam, water lines, gas lines and sewer lines (both storm and sanitary).

2.4 Operating and replacement costs of all equipment and material and tools used in connection with building maintenance excluding hand tools furnished by the employees.

Building maintenance may also provide services on a reimbursable basis to other accounts. Examples of these are auxiliary enterprises, alter-

2. Building Maintenance - (Cont.)

ations and improvements, new construction, experimental and special teaching support facilities, research, and departmental inventoried equipment.

3. Custodial Services

Includes all costs related to custodial services in building interiors. Does not include auxiliary enterprise buildings.

3.1 Salaries, wages and employee benefits of custodians, supervision, and services required for cleaning of building interiors.

3.2 Small set ups only where materials for the special set ups are stored or kept within the same building.

3.3 Snow removal on building steps + 5 feet of sidewalk in each direction.

3.4 Other operating costs such as paper, paper towels and tissue, wax, erasers, chalk, cleaners, and other materials and supplies.

3.5 Operating and replacement costs of all equipment used in connection with custodial services and lamp replacement readily accessible without special ladders and rigging.

3.6 Elevator operation on non-automatic equipment.

Common operations include: Mopping, sweeping, waxing of floors (sanding and refinishing of floors are excluded); dusting, polishing of furniture and fixtures such as venetian blinds, partitions, pictures, maps, radiators, etc.; cleaning of chalkboards, chalk trays, erasers, and replacement of chalk; washing and dusting of walls; cleaning and disinfecting commodes and urinals; cleaning and washing other fixtures, walls and partitions, and replenishing supplies for restrooms; the emptying and cleaning of waste receptacles; dusting and cleaning of windows and other glass surfaces; sweeping and cleaning of entrances; and opening and/or closing building doors and windows.

The custodian is not a personal servant, messenger, mailman or laboratory assistant for the faculty or students. Generally, services requiring technical direction at the time of performances such as cleaning chemistry laboratory bench tops, decontaminating radioactive facilities, or cleaning of extremely delicate apparatus are not classified as custodial, but are usually provided by the department having specific jurisdiction.

4. Utilities

Utility services include all costs for energy for heating, cooling, light and power, gas, water and any other utilities necessary for the operation of the physical plant and normally includes:

4. Utilities - (Cont.)

4.1 Payroll costs of all supervisory and operating personnel in connection with utilities,

4.2 Operation and maintenance of heating and power plant equipment including water plant and sewage disposal plants,

4.3 Operation and maintenance of equipment in central air conditioning plant,

4.4 Contractural costs for purchase of electricity, water and sewage treatment,

4.5 Operation and replacement costs of all equipment used in connection with production of utilities,

4.6 Maintenance of utility tunnels, outdoor distribution systems for electricity, gas, steam, compressed air, chilled water, and high temperature water, domestic water, sanitary and storm drains. The expense <u>does not</u> include open ditch drainage.

5. Landscape and Grounds Maintenance

Grounds maintenance includes operation and maintenance of campus landscape and grounds. Exclude areas not intensively maintained by the Physical Plant budget and/or other areas for which the Physical Plant is reimbursed.

5.1 Salaries, wages and employee benefits of all supervisory and operating personnel in connection with grounds,

5.2 All areas of the main campus maintained. Growing things as trees, grass, shrubs, flowers, nursery stock including seeds, fertilizers, and plant materials,

5.3 Maintenance of roads and walks, parking areas, irrigation systems, signs, etc.,

5.4 Snow removal,

5.5 Maintenance of golf course, athletic practice fields, and stadium varsity fields. (Costs are normally excluded from physical plant budgets),

5.6 Maintenance of Physical Education, intramural, and R.O.T.C. drill fields,

5.7 Maintenance of open ditch drainage, fences, retaining walls and rip rap,

5. Landscape and Grounds Maintenance - (Cont.)

5.8 Care of miscellaneous fixed equipment such as benches, shelter houses, etc.,

5.9 Operation and replacement costs of all equipment used in connection with grounds maintenance.

6. Major Repairs and Renovations (Special Line Items)

Major repairs and rehabilitation includes all costs for major non-recurring repairs and major deferred maintenance items. Major projects are those costing in excess of $10,000.

6.1 Cost of salaries of supervisory and operating personnel connected with major repairs and renovation projects,

6.2 Line item special allotments and essentially large improvement items,

6.3 Replacement costs of all equipment used in connection with major repairs and renovations,

6.4 Costs related to planning, design, or administration of major repairs and renovations.

7. Other Services

Other essential services not consistently within the Physical Plant Department, yet frequently assigned, are:

Automotive Repair
Bus Systems
Construction Planning & Inspection
Communications (i.e. Telephone & Telegraph)
Mail and Messenger Service
Property Insurance
Purchasing & Stores
Safety
Security & Traffic
Solid Waste Disposal
Trucking & Moving

DEFINITIVE TERMS

1. GROSS AREA

The area to be reported here is the total area maintained by your department and for which your department has a budget. Do not include any area for which your department is reimbursed. Give areas and costs for only those areas where Physical Plant Department is responsible.

As defined in the U.S. Department of Health, Education, and Welfare Bulletin No. OE 51004-12, "Function then relates to assignable area plus unassignable area (restrooms, corridors, stairs, wall and partition thickness, and the like), equal gross area." Gross area, therefore, is defined as the area of each floor level included within the principal outside faces of exterior walls, neglecting architectural setbacks and projections. All stories or space which have floor surfaces that can be adapted to use are included.

1.1 Definition

"Gross Area" should be construed to mean the sum of the floor areas included within the outside faces of exterior walls for all stories, or areas, which have floor surfaces.

1.2 Basis for Measurement

Gross area should be computed by measuring from the outside face of exterior walls, disregarding cornices, pilasters, buttresses, etc., which extend beyond the wall face.

1.3 Description

In addition to ground-to-top-story internal floored spaces obviously covered in 1.1 above, gross area should include basements (except unexcavated portions), attics, garages, enclosed porches, penthouses and mechanical equipment floors, lobbies, mezzanines, all balconies - inside or outside - utilized for operational functions, and corridors, provided they are within the outside face lines of the building.

Roofed loading or shipping platforms should be included whether within or outside the exterior face lines of the building.

1.4 Limitations

Open courts and light wells, or portions of upper floors eliminated by rooms or lobbies which rise above single-floor ceiling height, should not be included in the gross

1.4 Limitations - (Cont.)

area, nor should unenclosed roofed-over areas floored surfaces with less than 6 feet 6 inch clear head room be included unless they can properly be designated and used as either net assignable, mechanical, circulation, or custodial area.

1.5 Part Year Occupancy

When new buildings become operative during the year or for any reason an existing building is in service for only a part of the year, the area to be reported is the gross area multiplied by the fraction of the year the building was in service. Example: the fiscal year of the school ends on June 30. A new building of 100,000 gross square feet is accepted for beneficial occupancy on March 1. The area to be reported is 4/12 x 100,000 = 33,300 sq. ft. for the year of first occupancy. The following year the area to be reported is 100,000 sq. ft.

2. STUDENT ENROLLMENT

Enrollment data reported should be counted on the twelfth class day of the first semester of the fiscal year being reported. Example: reporting for fiscal year 1969-70. If classes began on September 8, 1969, enrollment as of September 24, 1969, should be reported.

2.1 Total Head Count should include all students registered regardless of academic load and should include both day and night students.

2.2 Full-Time Equivalent students should be determined by dividing the number of graduate credit hours by 9 and the undergraduate hours by 15.

IDENTIFICATION NUMBER	INSTITUTION
1	Saint Bernard College, Saint Bernard, Alabama
2	Medical University of South Carolina, Charleston, South Carolina
3	Medical College of Virginia, Richmond, Virginia
4	Mary Washington College, Fredericksburg, Virginia
5	University of North Carolina at Wilmington, Wilmington, North Carolina
6	Georgia College at Milledgeville, Milledgeville, Georgia
7	Samford University, Birmingham, Alabama
8	North Carolina A. & T. State University, Greensboro, North Carolina
9	University of Tennessee at Chattanooga, Chattanooga, Tennessee
10	Vanderbilt University, Nashville, Tennessee
11	Murray State University, Murray, Kentucky
12	Georgia Institute of Technology, Atlanta, Georgia
13	Tulane, University, New Orleans, Louisiana
14	University of Southern Mississippi, Hattiesburg, Mississippi
15	Duke University, Durham, North Carolina
16	Western Kentucky University, Bowling Green, Kentucky
17	University of Virginia, Charlottesville, Virginia
18	University of Louisville, Louisville, Kentucky
19	Virginia Polytechnic Institute & State University, Blacksburg, Virginia
20	North Carolina State University, Raleigh, North Carolina
21	Auburn University, Auburn, Alabama
22	Georgia State University, Atlanta, Georgia
23	Florida State University, Tallahassee, Florida
24	University of Kentucky, Lexington, Kentucky
25	University of Georgia, Athens, Georgia
26	University of Florida, Gainesville, Florida

RELATIVE ENROLLMENTS AND SIZES
1971 - 1972

INSTITUTION	STUDENT HEAD COUNT	F.T.E.	AREA * MAINTAINED	SQUARE FEET MAINTAINED	SQUARE FEET/ HEAD COUNT
1	1,106	1,040	110	300,000	271
2 (1)	1,478	1,478	23.5	711,751	482
3 (2)	1,779	1,684	35	2,300,000	1,295
4	2,168	2,163	234	429,990	198
5	2,295	2,064	109	312,932	137
6 (3)	2,363	2,185	---	---	---
7	2,973	2,526	90	508,400	171
8	4,321	3,968	70	922,284	214
9	4,873	4,028	4	572,658	118
10	6,348	6,348	75	3,945,982	623
11	7,071	6,214	276	1,182,332	167
12	8,125	9,371	100	2,287,923	282
13	8,453	7,310	138.4	1,914,441	227
14	8,763	8,163	192	2,125,546	243
15 (4,5)	8,779	---	444	3,907,077	447
16	11,350	10,432	200	3,550,000	313
17	12,351	12,116	610	4,492,359	363
18 (6)	12,968	10,468	234	2,383,455	184
19 (3)	13,282	13,691	650	2,394,939	180
20	13,483	11,669	356	3,314,876	246
21	14,003	15,372	450	2,196,938	156
22	16,945	13,108	36	1,187,673	70
23	18,624	18,937	302	2,709,518	145
24	19,305	19,254	350	4,685,949	242
25	21,148	21,651	575	4,203,124	199
26	23,672	25,000	551	3,596,410	152

Note:

(1) Does not include Teaching Hospital.

(2) Does include Teaching Hospital.

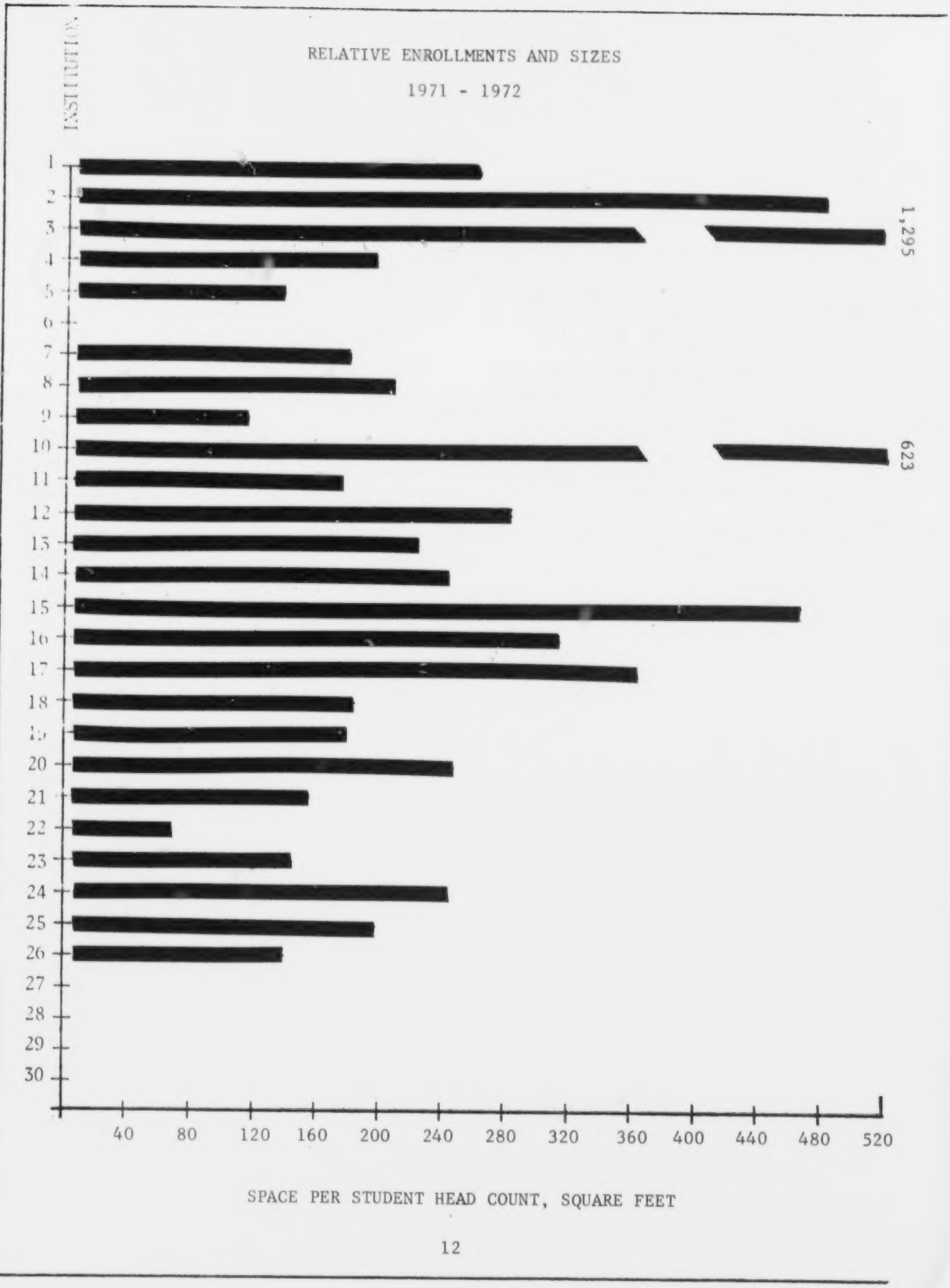
(3) Does not include Auxiliary Plant.

(4) Building Maintenance Costs include a prorated share of total University Administrative Expense equal to 28% of Direct Craft Labor Costs.

(5) Does not include Medical School nor Teaching Hospital.

(6) Does not include 384 Medical Students.

* Acres, intensely maintained.


RELATIVE ENROLLMENTS AND SIZES
1971 - 1972
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520
SPACE PER STUDENT HEAD COUNT, SQUARE FEET

TOTAL PHYSICAL PLANT EXPENDITURES IN DOLLARS
1971 - 1972

INSTITUTION	STUDENT HEAD COUNT	SQUARE FEET MAINTAINED	TOTAL PHYSICAL PLANT EXPENDITURES $	COST/ SQUARE FOOT $	COST/ HEAD COUNT $
1	1,106	300,000	170,000	.57	153.
2 (1)	1,478	711,751	3,036,612	2.05	2,054.
3 (1,2)	1,779	2,300,000	5,180,300	2.25	2,915.
4	2,168	429,990	662,218	1.54	305.
5	2,295	312,932	409,924	1.31	178.
6	2,363	---	496,245	---	210.
7	2,973	508,400	532,601	1.05	179.
8	4,321	922,284	1,226,174	1.33	284.
9	4,873	572,658	764,954	1.33	157.
10	6,348	3,945,982	3,003,824	.76	473.
11	7,071	1,182,332	1,746,752	1.48	247.
12	8,125	2,287,923	2,972,871	1.30	365.
13	8,453	1,914,441	2,501,281	1.31	296.
14	8,763	2,125,546	1,097,850	.52	125.
15	8,779	3,907,077	3,671,578	.94	418.
16	11,350	3,550,000	2,485,181	.71	219.
17	12,351	4,492,359	2,719,317	.61	220.
18	12,968	2,383,455	2,514,594	1.06	194.
19	13,282	2,394,939	3,793,183	1.59	286.
20	13,483	3,314,876	4,218,870	1.27	313.
21	14,003	2,196,938	2,456,418	1.12	175.
22	16,945	1,187,673	2,355,294	1.98	139.
23	18,624	2,709,518	4,663,555	1.72	250.
24	19,305	4,685,949	5,913,477	1.26	306.
25	21,148	4,203,124	5,645,036	1.34	267.
26	23,672	3,596,410	5,866,478	1.63	248.

Note:

(1) Includes Medical School.

(2) Includes Medical School and Teaching Hospital.

TOTAL PHYSICAL PLANT EXPENDITURES

1971 - 1972 FISCAL YEAR SQUARE FOOT COMPARISON

TOTAL PHYSICAL PLANT EXPENDITURES

1971 - 1972 FISCAL YEAR HEAD COUNT COMPARISON

DOLLARS PER HEAD COUNT

PHYSICAL PLANT ADMINISTRATION

1971 - 1972

INSTITUTION	STUDENT HEAD COUNT	SQUARE FEET	COSTS $	COSTS/ SQUARE FOOT $	COSTS/ HEAD COUNT $
1	1,106	300,000	19,500	.065	17.60
2	1,478	711,751	43,297	.062	29.25
3	1,779	2,300,000	135,600	.059	76.30
4	2,168	429,990	63,375	.148	29.25
5	2,295	312,932	61,752	.198	26.92
6	2,363	---	18,964	---	8.02
7	2,973	508,400	27,500	.054	9.25
8	4,321	3,971,484	49,346	.012	11.37
9	4,873	699,185	58,478	.084	12.00
10	6,348	3,945,982	258,147	.065	40.70
11	7,071	1,182,332	67,502	.057	9.55
12	8,125	2,287,923	297,147	.130	36.50
13	8,453	1,914,441	198,469	.104	23.50
14	8,763	2,125,546	29,000	.014	3.31
15	8,779	3,907,077	111,944	.029	12.75
16	11,350	3,550,000	201,972	.057	17.77
17	12,351	4,492,359	127,416	.028	10.30
18	12,968	2,383,455	190,073	.080	14.70
19	13,382	2,394,939	207,228	.087	15.61
20	13,483	3,314,876	289,689	.087	21.50
21	14,003	4,308,850	127,658	.030	9.12
22	16,945	1,187,673	147,840	.125	8.73
23	18,624	2,709,518	170,044	.063	9.14
24	19,305	4,685,949	202,625	.043	10.48
25	21,148	6,617,283	375,385	.057	17.76
26	23,672	3,596,410	286,680	.080	12.12

PHYSICAL PLANT ADMINISTRATION
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DOLLARS PER SQUARE FOOT

PHYSICAL PLANT ADMINISTRATION
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DOLLARS PER STUDENT HEAD COUNT

BUILDING MAINTENANCE COSTS

1971 - 1972

INSTITUTION	STUDENT HEAD COUNT	SQUARE FEET	COSTS $	COSTS/ SQUARE FEET $	COSTS/ HEAD COUNT $
1	1,106	300,000	41,000	.137	37.05
2	1,478	711,751	879,123	1.236	595.50
3	1,779	2,300,000	969,200	.421	544.50
4	2,168	429,990	252,457	.588	116.40
5	2,295	312,932	54,898	.175	23.93
6	2,363	---	135,500	---	57.35
7	2,973	508,400	165,000	.555	32.44
8	4,321	922,284	120,852	.131	27.95
9	4,873	572,658	151,408	.264	31.08
10	6,348	3,945,982	1,046,405	.265	164.80
11	7,071	1,182,332	583,594	.493	82.50
12	8,125	2,287,923	719,480	.315	88.50
13	8,453	1,914,441	330,682	.173	39.09
14	8,763	2,125,546	234,600	.110	26.76
15	8,779	3,907,077	832,577	.213	94.85
16	11,350	3,550,000	544,029	.153	47.95
17	12,351	4,492,359	505,327	.113	40.93
18	12,968	2,383,455	103,978	.044	8.01
19	13,282	2,394,939	883,815	.369	66.45
20	13,483	3,314,876	714,389	.216	53.00
21	14,003	2,196,938	889,063	.405	63.45
22	16,945	1,187,673	737,851	.662	43.52
23	18,624	2,709,518	490,390	.181	26.32
24	19,305	4,685,949	1,706,628	.364	88.30
25	21,148	4,203,124	686,849	.163	32.45
26	23,672	3,596,410	1,076,507	.299	45.50

BUILDING MAINTENANCE COSTS
1971 - 1972
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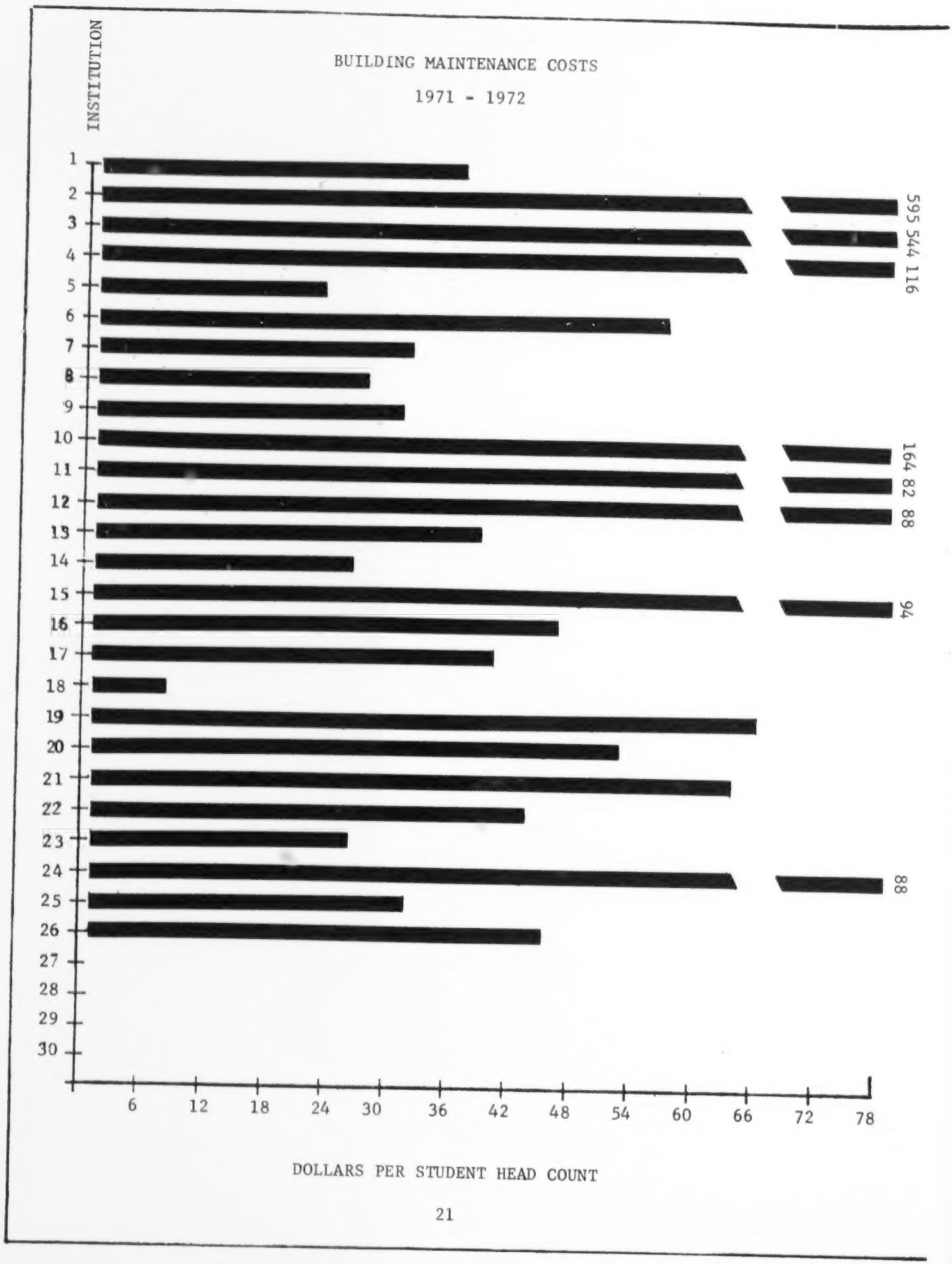
DOLLARS PER SQUARE FOOT


BUILDING MAINTENANCE COSTS
1971 - 1972
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DOLLARS PER STUDENT HEAD COUNT

CUSTODIAL SERVICES COSTS

1971 - 1972

INSTITUTION	STUDENT HEAD COUNT	SQUARE FEET	COSTS	COSTS/ SQUARE FOOT	COSTS/ HEAD COUNT
			$	$	$
1	1,106	300,000	35,000	.117	31.63
2 (1)	1,478	711,751	263,615	.370	178.20
3 (1,2)	1,779	2,300,000	1,408,000	.612	782.00
4	2,168	429,990	138,420	.322	63.85
5	2,295	312,932	120,576	.385	52.50
6	2,363	---	75,623	---	32.03
7	2,973	508,400	126,500	.249	42.53
8	4,321	922,284	306,264	.332	70.82
9	4,873	572,658	247,598	.433	50.80
10	6,348	3,945,982	373,970	.095	58.90
11	7,071	1,182,332	309,015	.262	43.75
12	8,125	2,287,923	466,343	.204	57.40
13	8,453	1,914,441	661,993	.346	75.83
14	8,763	2,125,546	242,950	.114	27.70
15	8,779	3,907,077	931,858	.244	108.70
16	11,350	3,550,000	580,541	.164	51.15
17	12,351	4,492,359	820,091	.183	66.41
18	12,968	2,383,455	766,539	.322	59.10
19	13,282	2,394,939	602,063	.251	45.35
20	13,483	3,314,876	1,107,317	.334	82.10
21	14,003	2,196,938	343,410	.157	24.52
22	16,945	1,187,673	1,083,878	.913	63.95
23	18,624	2,709,518	896,944	.331	48.15
24	19,305	4,685,949	1,568,801	.335	81.20
25	21,148	4,203,124	1,280,631	.305	60.55
26	23,672	3,596,410	1,492,743	.415	63.05

Note:

(1) Includes Medical School.

(2) Includes Medical School and Hospital.

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DOLLARS PER SQUARE FOOT

913

CUSTODIAL SERVICES COSTS
1971 - 1972
DISTRICTS
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81
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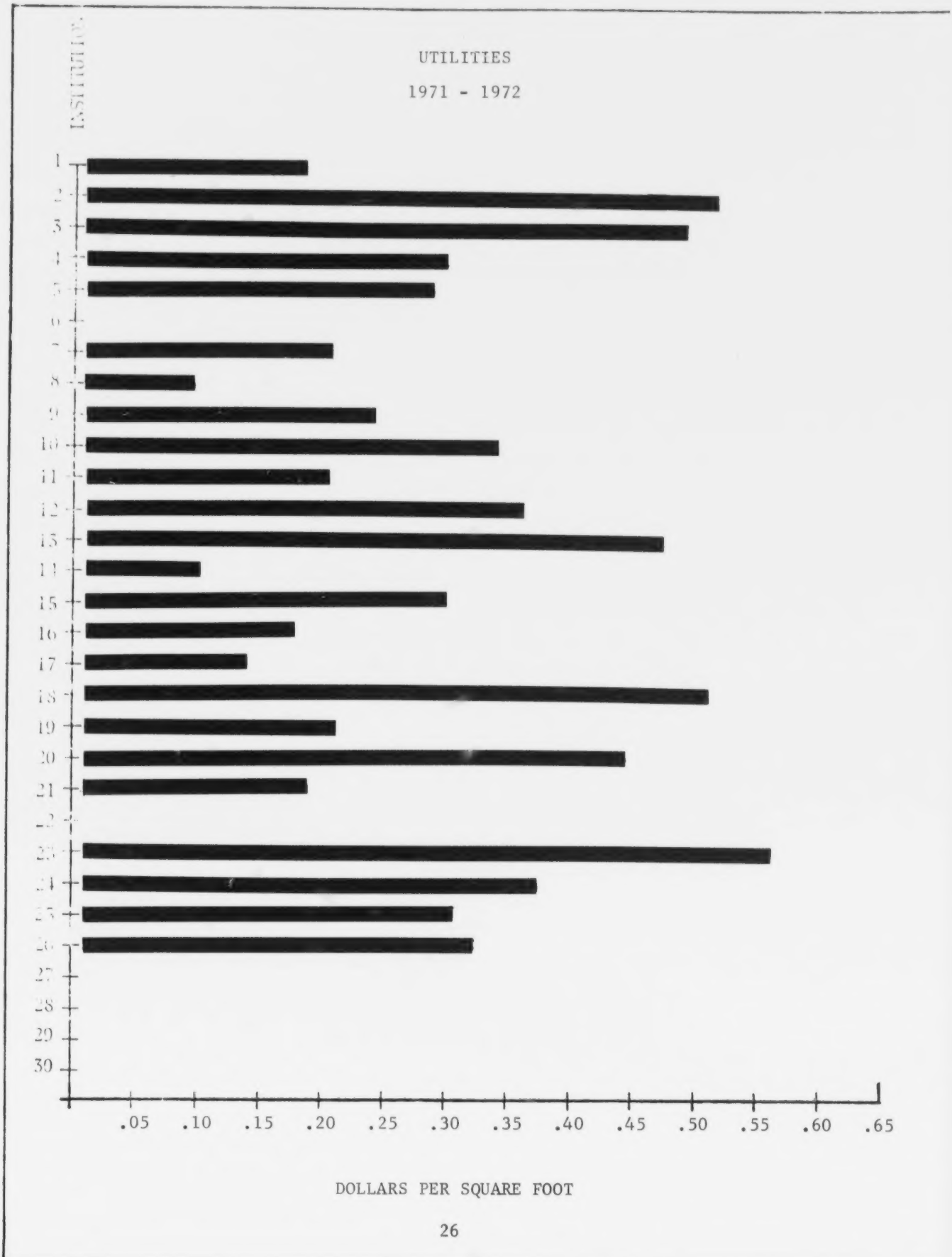
70.
DOLLARS PER STUDENT HEAD COUNT

UTILITIES

1971 - 1972

INSTITUTION	STUDENT HEAD COUNT	SQUARE FEET	COSTS	COSTS/ SQUARE FOOT	COSTS/ HEAD COUNT
			$	$	$
1	1,106	300,000	55,000	.182	49.40
2	1,478	711,751	376,043	.529	254.30
3	1,779	2,300,000	1,102,500	.479	620.00
4	2,168	429,990	127,919	.297	59.00
5	2,295	312,932	79,710	.255	34.73
6	2,363	---	100,331	---	42.35
7	2,973	508,400	108,000	.212	36.30
8	4,321	3,971,484	373,573	.094	86.40
9	4,873	572,658	139,599	.243	28.68
10	6,348	3,439,930	1,182,576	.344	186.30
11	7,071	2,326,991	471,741	.203	66.65
12	8,125	2,287,923	838,244	.367	103.10
13	8,453	1,914,441	907,102	.474	107.20
14	8,763	2,125,546	211,800	.100	24.20
15	8,779	3,817,004	1,140,640	.299	130.00
16	11,350	3,550,000	611,200	.172	53.82
17	12,351	4,492,359	594,059	.132	48.10
18	12,968	2,383,455	1,214,568	.510	93.70
19	13,282	4,529,290	954,465	.211	72.00
20	13,483	3,314,876	1,484,361	.447	110.02
21	14,003	2,196,938	402,923	.183	28.68
22	16,945	---	280,000	---	16.52
23	18,624	2,709,518	1,532,140	.566	82.30
24	19,305	4,685,949	1,735,636	.371	89.80
25	21,148	4,203,124	1,281,085	.305	60.60
26	23,672	3,596,410	1,174,329	.326	49.60


UTILITIES
1971 - 1972
ESTIMATES
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DOLLARS PER SQUARE FOOT

UTILITIES
1971 - 1972
ESTIMATES
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186
130
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70.
80.
90.
100.
110.
120.
DOLLARS PER STUDENT HEAD COUNT

LANDSCAPE AND GROUNDS MAINTENANCE COSTS

1971 - 1972

INSTITUTION	STUDENT HEAD COUNT	GROSS ACRES	AREA * MAINTAINED	COSTS $	COST/ACRE MAINTAINED $	COST/ HEAD COUNT $
1	1,106	800	110	10,000	91.	9.40
2	1,478	123	12	12,723	1,061.	8.61
3	1,779	35	35	65,000	1,857.	36.52
4	2,168	386	234	156,195	667.	72.10
5	2,295	654	109	43,263	397.	18.85
6	2,363	785	---	34,851	---	14.75
7	2,973	540	90	28,000	311.	9.42
8	4,321	138	70	61,953	886.	14.34
9	4,873	52	.4	66,168	16,520.	13.57
10	6,348	207	75	126,810	1,690.	19.97
11	7,071	632	276	94,520	342.	13.36
12	8,125	250	100	139,895	1,399.	17.22
13	8,453	438	138	135,436	971.	16.02
14	8,763	900	192	162,400	846.	18.55
15	8,779	790	444	332,635	749.	37.90
16	11,350	1,000	200	187,586	938.	16.53
17	12,351	1,525	610	188,802	310.	15.30
18	12,968	587	234	39,436	168.	3.08
19	13,282	2,113	650	257,573	396.	19.40
20	13,483	572	356	321,479	903.	23.84
21	14,003	1,871	450	234,550	521.	16.73
22	16,945	252	36	59,225	1,645.	3.50
23	18,624	666	302	605,661	2,003.	32.50
24	19,305	700	350	342,234	977.	17.72
25	21,148	1,435	575	623,652	1,085.	29.50
26	23,672	2,180	551	1,060,246	1,926.	44.80

Note:

* Acres, intensely maintained.

LANDSCAPE AND GROUNDS MAINTENANCE COSTS
1971 - 1972
INSTITUTIONS
16,520
400
800
1,200
1,600
2,000
2,400
DOLLARS PER ACRE, INTENSELY MAINTAINED

LANDSCAPE AND GROUNDS MAINTENANCE COSTS
1971 - 1972
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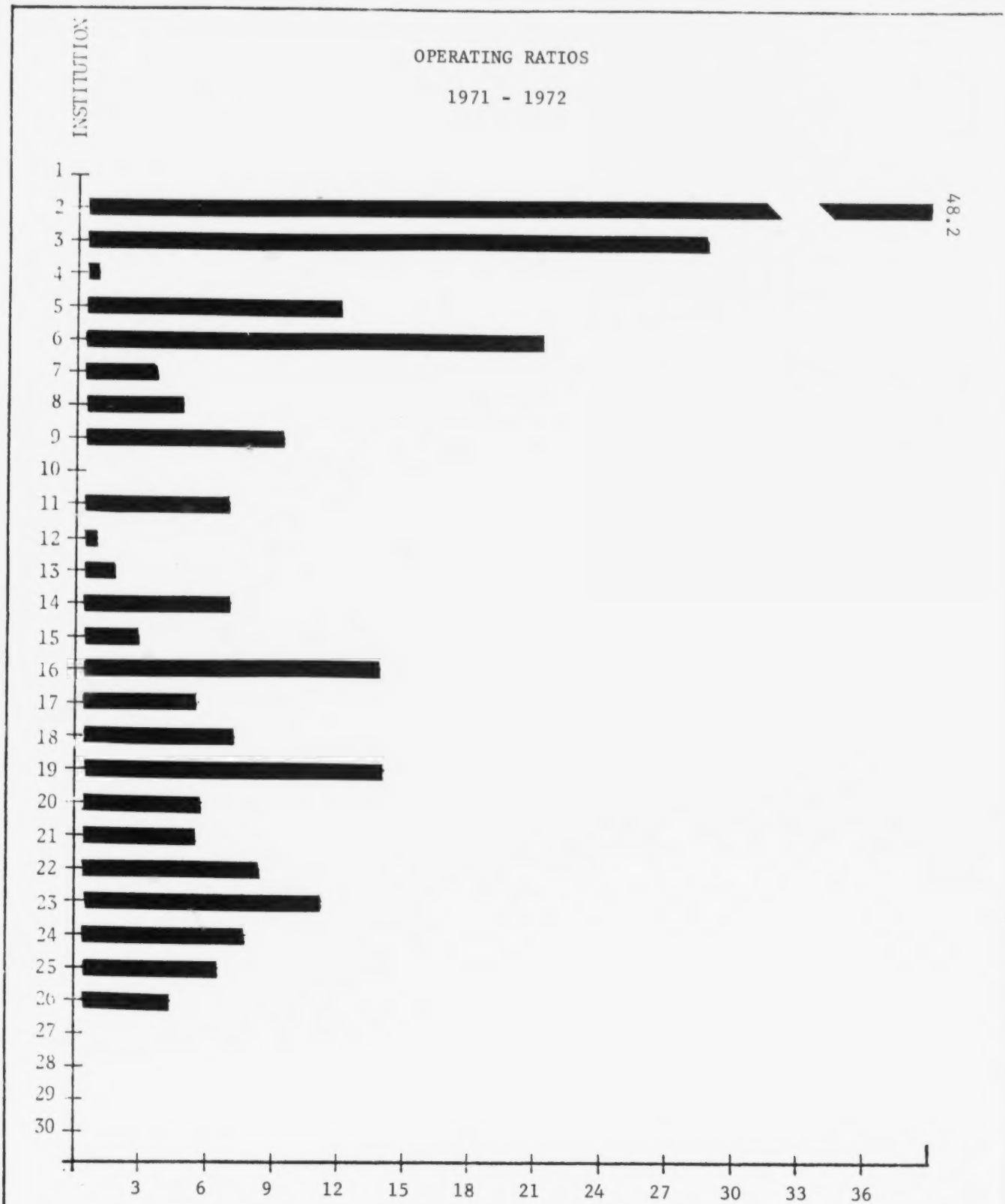
DOLLARS PER STUDENT HEAD COUNT

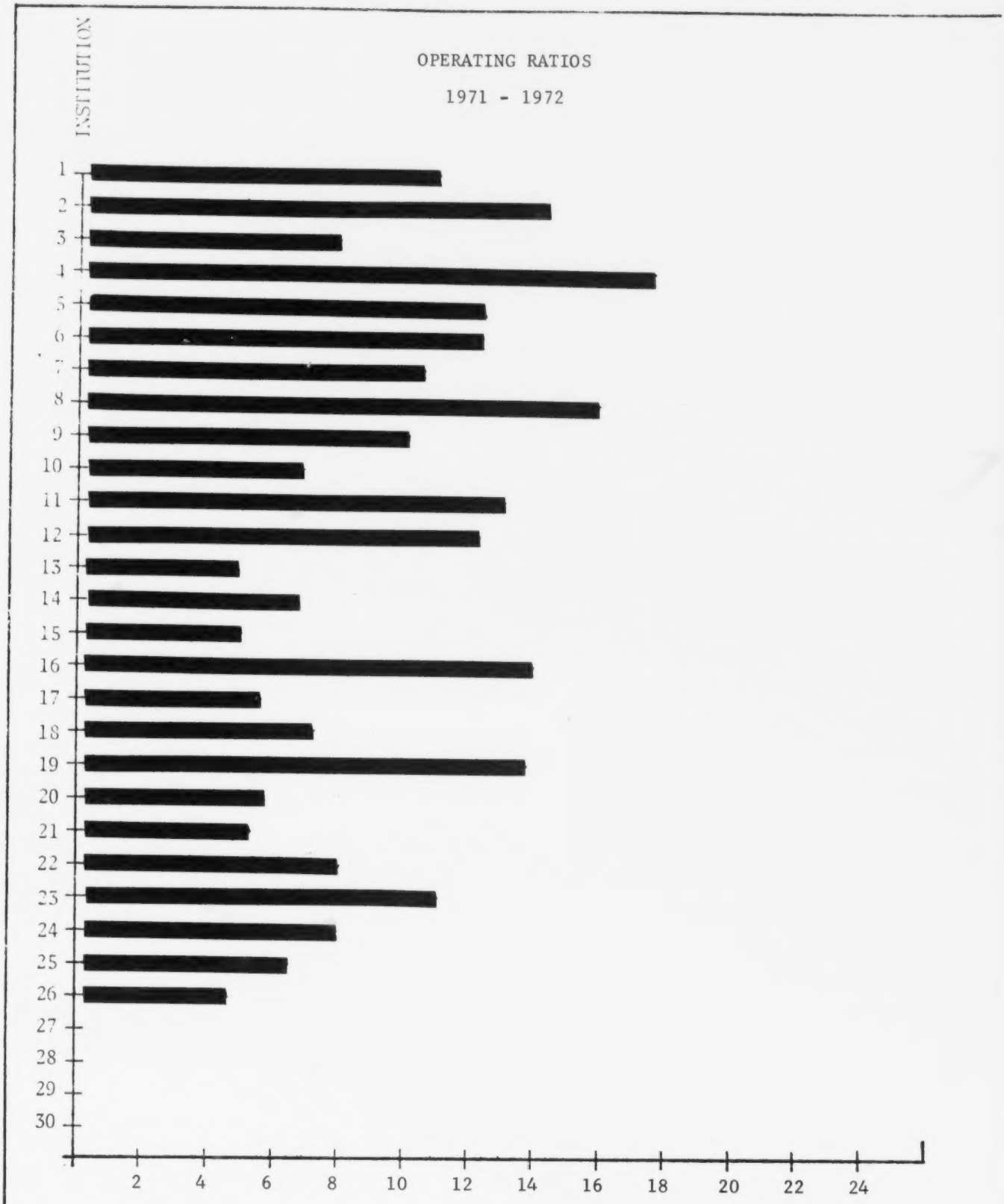
OPERATING RATIOS

1971 - 1972

INSTITUTION	MAJOR REPAIRS/ PHYSICAL PLANT TOTAL, %	OTHER PHYSICAL PLANT SERVICE/ PHYSICAL PLANT TOTAL, %	% CAMPUS AREA MAINTAINED	PHYSICAL PLANT BUDGET AS A % INSTITUTION TOTAL
1	---	6.2	13.8	11.0
2	48.2	---	19.2	14.5
3	29.0	---	100.0	8.0
4	.7	17.6	60.6	17.5
5	12.1	---	16.7	12.4
6	21.5	4.9	---	12.2
7	4.1	10.3	16.7	10.6
8	5.2	20.3	50.7	16.0
9	9.4	3.9	7.8	10.1
10	---	.5	36.2	7.0
11	6.9	5.7	43.6	13.0
12	.9	16.2	40.0	12.3
13	1.9	8.8	31.6	5.0
14	6.9	1.2	21.3	6.9
15	3.0	5.8	56.1	5.0
16	14.0	3.6	20.0	14.0
17	5.7	5.2	40.0	5.7
18	7.3	---	39.8	7.3
19	13.8	13.5	30.8	13.8
20	5.9	4.9	62.3	5.9
21	5.4	11.6	24.0	5.4
22	8.1	1.1	14.3	8.0
23	11.0	17.9	45.3	11.0
24	8.0	6.0	50.0	8.0
25	6.4	13.3	40.1	6.4
26	4.7	12.6	25.3	4.7



MAJOR REPAIRS
AS A PER CENT OF TOTAL PHYSICAL PLANT BUDGET


OPERATING RATIOS
1971 - 1972
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PHYSICAL PLANT BUDGET
AS A PER CENT OF TOTAL INSTITUTIONAL BUDGET